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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/738,927	12/13/2000	Robin R. Miles	IL-10404	1809

7590 10/03/2003  
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EXAMINER

DIAMOND, ALAN D

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 10/03/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/738,927

Applicant(s)

MILES, ROBIN R.

Examiner

Alan Diamond

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because Figure 1 is too close to the top of the page. When holes were punched through said page to place the page in the application file wrapper, the holes came too close to Figure 1. Figure 1 is now somewhat difficult to see and read. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference sign 10' that is referred to at page 6, line 19. Also, reference sign 23 in Figure 3 is so faint that it appears not at all to be present in Figure 3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Information Disclosure Statement*

3. The information disclosure statement filed on December 13, 2000 does not fully comply with the requirements of 37 CFR 1.98 because: complete copies were not received for the Fiedler et al, Suehiro et al, and Green et al journal articles. Only page 1090 was supplied for Fiedler et al; only pages 3298-3300 were supplied for Suehiro et al; and only page L25 was supplied for Green et al. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the

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above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

***Claim Objections***

4. Claims 5, 7, 11, and 12 are objected to because of the following informalities: In claim 5, at line 1, the word "has" should be changed to "have". In claim 7, at line 1, the term "whereins" should be changed to "wherein". In claim 11, at line 1, the word "A" should be changed to "a". In claim 11, at each of lines 2 and 5, the word "on" should be changed to "one". In claim 12, at line 8, the comma should be next to the word "and". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is indefinite because "the other" at line 2 lacks positive antecedent support in claim 5 itself and in claim 1. It is suggested that "the other" be changed to "another".

***Claim Rejections - 35 USC § 102***

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7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Milner et al, "Dielectrophoretic classification of bacteria using differential impedance measurements," Electronics Letters, Vol. 34, No. 1, January 8, 1998.

Milner et al teaches the dielectrophoretic collection of bacteria in a electric field formed by electrodes, and detects the bacteria using a sensor that detects the impedance changes between the electrodes (see the entire document, and in particular Figures 1 and 2 and the experimental results). Since Milner et al teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

9. Claims 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Gerwen et al, WO 97/21094.

Van Gerwen et al teaches an impedimetric detection system comprising an insulating layer with a plurality of interspersed channels therein (see the abstract; and Figure 2). A metal coating is applied to one of the two opposite side walls of each channel and on top of the dielectric layer in between said channels, thereby forming an impedimetric device (see the abstract; and Figure 2). Probes are applied to either the insulating part of the channels or to the surface of the electrodes or both (see the abstract). The device also comprises means for applying a voltage on the metal coatings and measuring impedance between the electrodes (see the abstract). The

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sensor has an interdigitated electrode structure (see page 10, lines 10-16; and page 15, line 28). When an electric signal is applied (voltage or current), an electric field arises. If the analyte is present in the solution tested, it will be bound to the probe on the electrode surface, resulting in a change in impedance, which is then quantified (see page 15). Since Van Gerwen et al teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-6, 8-10, and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Gerwen et al, WO 97/21094, in view of Stetter, U.S. Patent 5,567,301.

Van Gerwen et al teaches an impedimetric detection system comprising an insulating layer with a plurality of interspersed channels therein (see the abstract; and Figure 2). A metal coating is applied to one of the two opposite side walls of each channel and on top of the dielectric layer in between said channels, thereby forming an impedimetric device (see the abstract; and Figure 2). Probes are applied to either the insulating part of the channels or to the surface of the electrodes or both (see the abstract). The device also comprises means for applying a voltage on the metal coatings and measuring impedance between the electrodes (see the abstract). The

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sensor has an interdigitated electrode structure (see page 10, lines 10-16; and page 15, line 28). When an electric signal is applied (voltage or current), an electric field arises. If the analyte is present in the solution tested, it will be bound to the probe on the electrode surface, resulting in a change in impedance, which is then quantified (see page 15). Van Gerwen et al teaches the limitations of the instant claims other than the difference which is discussed below.

Van Gerwen et al does not specifically teach the use of an AC source. Stetter et al teaches a biosensor comprising two spaced metal electrodes, wherein at least one antibody is disposed in and/or between the two electrodes (see col. 3, line 32, through col. 3, line 14; and Figure 1). The sensor also comprises impedance detection means for measuring the impedance between the two electrodes (see cols. 3-4). Since Figure 2 shows the impedance as a function of the AC frequency, the presence of an AC power source for the production of an electric field across the electrodes is inherent. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the AC power source of Stetter et al with the sensor of Van Gerwen et al because the use of AC impedance is very well known in the art.

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10-28 of copending Application No. 09/737,542. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of said copending application further include antibodies on the spaced electrodes. However, the presence of such antibodies are not excluded by the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. Claims 1-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 09/993,870. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of said copending application further include antibodies on the spaced electrodes. However, the presence of such antibodies are not excluded by the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. Claims 1-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all of the claims of copending Application No. 09/738,461. Although the conflicting claims are not identical,



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they are not patentably distinct from each other because the ionic label that is trapped in the electric field of the claims of said copending application is not excluded by the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publications 2001/0053535, 2002/0072054, 2002/0076690, and 2002/0150886 are hereby made of record.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 703-308-0840. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 703-308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Alan Diamond  
Primary Examiner  
Art Unit 1753

Alan Diamond  
September 5, 2003